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THE EFFECT OF COMIC STRIPS ON EFL READING COMPREHENSION

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ABSTRACT

The purpose of this study is to investigate the effects of comic strips on reading comprehension of Turkish EFL learners. 167 university students from two proficiency levels (lower-intermediate and upper-intermediate) were divided into four treatment groups: low-level text only, low-level text with comic strips, high-level text only, and high-level text with comic strips. Students read the texts given and wrote what they remembered about the text on a separate answer sheet. The collected data were analyzed through scoring the Immediate Recall Protocols (IRP) by dividing each recall protocol into acceptable pausal units and ranging them from 1 to 4 based on their salience to the message of the text based on a sample value list. The results of the quantitative analyses showed that all students with a comic strip effect, regardless of proficiency and text level, performed better than the ones without the comic strips. The findings of the study confirm the Dual Coding Theory (DCT) on the account that students are better at comprehending reading texts that are accompanied with visuals. The results of the study are discussed along with the existing literature on the use of visuals for developing reading skills. Certain implications for language teachers and some suggestions for further research are also provided.

Key Words: Reading comprehension, comic strips, language teaching, language learning, Dual Coding Theory (DCT)

INTRODUCTION

The focus of the educational community has shifted from teaching basic skills to teaching higher-level thinking. The higher level thinking skills are identified as the ability to learn, to reason, to think creatively, to make decisions, and to solve problems; and these skills are seen as critical for success in the classroom (Sherman & Wright, 1996). The reinforcement of these higher skills is mostly possible through providing a secondary stimulus for learners in the learning process of a second language.

In this respect, language teachers all over the world give their students reading materials providing visuals accompanied with the texts. Also, most course books to teach English contain visual materials to help students connect their attention to reading passages. As Wright & Sherman (1994) suggests, visuals, especially comics are commonly used to encourage and develop students' interests and competencies in reading.

In particular, the common practice among EFL and ESL teachers is the use of reading materials accompanied by certain visuals in their classrooms. Types of visuals used with reading texts can be listed as pictures, cartoons, comic strips, maps, video films, photographs, etc.

Comic strips, as an inevitable component of visual materials, have been analyzed in terms of their uses as instructional tools as comic books (Williams, 1995) and short strips (Purnell & Solman, 1991) in the last two

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decades. The recent literature on the use of visuals in reading comprehension has pointed out that the visual aids can be good teaching tools (Wright & Sherman, 1999), valuable companies for reading comprehension passages (Liu, 2004), and a fruitful research tool to elicit information especially for the production of language (Gambrell & Jawitz, 1993). Nevertheless, there has been little attempt to identify the possible effects of comic strips as a type of visual on reading comprehension of ESL/EFL learners.

Considering the theoretical and practical suggestions in the reading comprehension literature, this study aims to investigate the effects of comic strips on reading comprehension; and the following research questions were addressed:
1. What effect does presenting text with comic strips have on Turkish EFL students' reading comprehension?
2. Does using comic strips with a text geared toward the student's proficiency level improve the student's reading comprehension more than using comic strips with a text that is either above or below the student's proficiency level?

REVIEW OF LITERATURE

This section of the paper describes the theoretical background to the problem in this study and reviews the studies conducted on reading comprehension in L1 and L2, and the effects of visuals, comic strips in particular, on reading comprehension performance.

Does using visual aids help L2 readers?

Many reading comprehension studies consider the extent to which visuals, help readers to comprehend the information presented within the texts. Certain functions of visuals in reading were identified as:

- *Representation:* Visuals repeat the text's content or substantially overlap with the text.
- *Organization***:** Visuals enhance the text's coherence.
- *Interpretation:* Visuals provide the reader with more concrete information.
- *Transformation:* Visuals target critical information in the text and recode it in a more memorable form.
- *Decoration:* Visuals are used for their aesthetic properties or to spark readers' interest in the text. (Liu, 2004: 226)

One of the theoretical frameworks to describe, explain, and predict the effects of visuals on cognition is the Dual Coding Theory (DCT). According to Liu (2004: 226), "the DCT, which concerns the nature of language and imagery, can perhaps provide a framework to unify these disparate theories. Paivio (1986; cited in Richardson, 2003; Liu, 2004) states:

"Human cognition is unique in that it has become specialized for dealing simultaneously with language and with nonverbal objects and events. Moreover, the language system is peculiar in that it deals directly with linguistic input and output (in the form of speech or writing) while at the same time serving a symbolic function with respect to nonverbal objects, events, and behaviors. Any representational theory must accommodate this dual functionality."

In this respect, Figure 1 represents the working system of the DCT for human cognition, and how comprehension takes place as an interaction of verbal and nonverbal processes.

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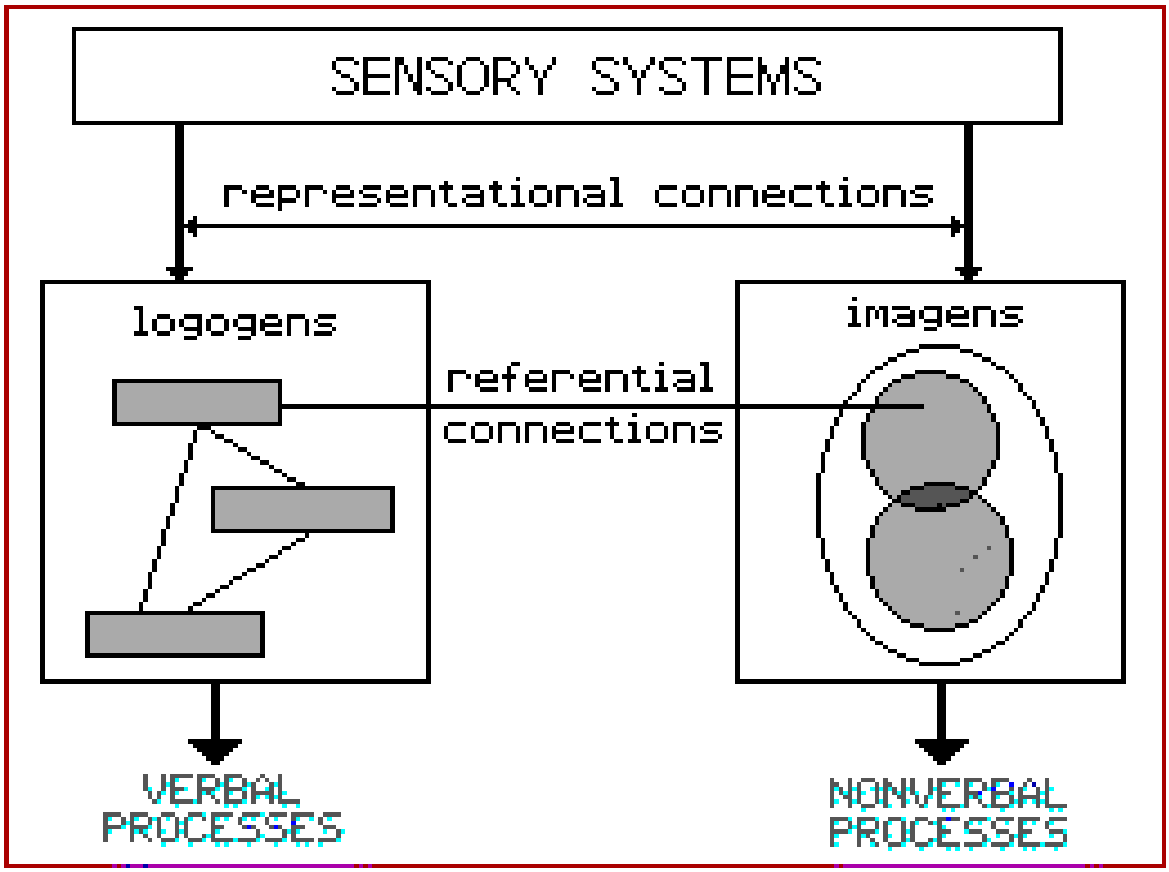

Figure 1: Mental Representation of the DCT

As Figure 1 indicates, the linguistic coding system can be called as the 'verbal system', and the nonverbal coding system can be called as the 'imagery system'.

DCT has been used as a theoretical framework in both L1 and L2 reading research. Certain researchers found that visuals duplicating information in the text improve reading comprehension and memory (Hallenbeck, 1976; Arlin, Scott & Webster, 1978-1979; Kulhavy, Lee & Caterino, 1985; Purnell & Solman, 1991; Gambrell & Jawitz, 1993; Qadiri, 1999).

In one experiment, Purnell & Solman (1991) investigated the effects of illustrations on first language learners' reading comprehension. In Experiment 1, the same basic geographical text was read by three groups of 25 students each; additional, related content was presented (a) as an illustration, (b) as text, or (c) as both text and illustration. The presence of related content in an illustration did not improve comprehension of the basic content; however, the group that received the additional content as both text and illustration (Group 3) outperformed the other two groups on that content. In Experiments 2, 4, and 5, content presented in the form of both text and illustration resulted in higher comprehension than simple repetition of either the text or the illustration. In Experiments 2, 3, 4, and 5, content presented in an illustration only was comprehended better than the same content presented in text only. These results suggest that technical content that lends itself to presentation as an illustration will be comprehended better as an illustration than as text, and will be comprehended best of all if presented in both forms.

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In another study, Gambrell & Jawitz (1993) investigated the effectiveness of induced mental imagery, attention to story illustrations, and both together. The main hypothesis of the study was that mental imagery and text-relevant illustrations play similar roles in the processing chains involved in comprehension, and these two strategies, when used in combination, interact in positive, interconnected ways that result in enhanced reading comprehension. 120 fourth-grade students enrolled in three Florida public elementary schools were the subjects of the study. A text, illustrations of the text, and a reading comprehension assessment were used as the research instruments. Subjects were randomly assigned to one of these treatment conditions:

1. Induced mental imagery and attention to text illustrations.
2. Induced mental imagery
3. Attention to text illustrations
4. General memory (Control Group)

The MANOVA analyses showed that the combined strategy of induced mental imagery and attention to text-relevant illustrations is the most potent comprehension strategy. Also, there is a positive relationship between mental images and text illustrations

DCT is also a useful framework for studying the effects of visuals on L2 learning and L2 reading comprehension in certain research studies. (Yaygıngöl, 1990; Henley, Herron, and Cole, 1995; Min, 1998; Avcı, 1999; Nassaji, 2003).

In one of these studies, Henley, Herron, and Cole (1995) investigated the effects of two visual advance organizers on comprehension and retention of a written passage in a FLES (Foreign Language in the Elementary School) Program: *Video Pictures + Teacher Narrative*. 62 English-speaking child foreign language learners of French formed the subjects of the study. Subjects were randomly assigned to two groups: the *Video Condition* or the *Picture + Teacher Narrative Condition* An immediate test, midterm and final tests, and a survey were the research instruments. Results of the independent samples T-test for immediate test, and the chi-square tests for the midterm and final exam results showed that *Video* was more effective advance organizer than *Pictures + Teacher Narrative*. Also, the scores for the *Video Condition* were significantly higher than the scores for the *Pictures + Teacher Narrative Condition.*

In a recent paper, Nassaji (2003) investigated the role of higher-level syntactic and semantic processes and lower-level word recognition and graphophonic processes in adult ESL reading comprehension. In particular, the study aimed to examine the extent to which these processes can discriminate skilled from less skilled readers in a sample of fairly advanced ESL readers. 60 adult ESL learners in Canada (30 in skilled group and 30 in less-skilled group) were the participants of the study. A reading task from the reading section of the Nelson-Denny reading test (reliability of the test: .85) was used as the research instrument. Word recognition, phonological processing skills, orthographic processing skills, and syntactic processing skills were measured by the task. The analysis of the data with Wilks' Lambda scores showed that all four processes (Word recognition, phonological processing skills, orthographic processing skills, and syntactic processing skills) were contributing significantly to the distinction between skilled and less-skilled ESL readers.

These findings suggest that effective lower level processes are an integral part of second language reading comprehension, and thus different text processing skills must not be neglected even for highly advanced ESL readers.

What is a comic strip?

A comic strip can be defined as "a series of pictures inside boxes that tell a story" (Liu, 2004: 229). During the past two decades, a number of studies have introduced techniques for using comic strips in education and particularly in language classrooms (Arslan, 1989; Wright & Sherman, 1994; Gower, 1995; Williams, 1995; Sherman & Wright, 1996; Cortazzi et al, 1998; Wright & Sherman, 1999; Bryan et al, 2002; Liu, 2004).

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As one of these studies, Wright & Sherman (1994) identified the features of comic strips that make them an ideal medium for reading and English courses. In their paper, the researchers analyzed the readability (interest, availability, suitability, comprehensibility, and flexibility) of comic strips for teachers and students based on the relevant literature. The authors suggested that comic strips can be used effectively to build reading skills in a three-step model in the language classrooms.

In another study, Sherman & Wright (1996) introduced a teaching strategy using newspaper comic strips to promote higher level thinking in elementary and secondary students. The researchers explained and demonstrated two functions of questioning (centering and expansion) using a Peanuts comic strip. Wright & Sherman (1999) later claimed that teachers can promote literacy, higher level thinking, and writing skills by encouraging students to combine words and pictures to create comic strips.

Williams (1995) investigated how comic books can be used as instructional materials for ESL students with low-intermediate-level English learners and limited discourse and interactive competence. The researcher found that using comic strips in second language classrooms can guide students to hypothesize about the cartoons' language, to raise awareness of pragmatics, and to emphasize language's underlying regularity.

Finally, a recent study (Liu, 2004) investigated the effects of comic strips on L2 learners' reading comprehension. 107 university level students of English were divided into two proficiency groups: intermediate proficiency group and high intermediate proficiency group. Two texts were used as the research instrument: First, a text was created for high intermediate proficiency group, and a second text was simplified to make it a low level one by the English-speaking professionals. Students in each group were divided into four treatment groups: T1, low-level text only; T2, low-level text with comic strips; T3, high-level text only; and T4, high-level text with comic strips. The data were collected with immediate recall protocols (IRP) in which students wrote what they understood from the text after they read and analyzed the given texts as long as they wished. Data was analyzed by scoring the IRP results. First, each recall was divided into pausal units and was ranked from 1 to 4 according to their semantic significance to the text. Later, three raters scored each protocol individually and a high inter-rater reliability was achieved (.95). To see the statistical results, a three-way ANOVA was carried out among the three variables: student proficiency, text level, and comic strip effect. The results of the study showed that the low level students taking the high level text with the comic strip scored significantly higher than the low level students taking the high level text only; providing a comic strip with the high-level text did not improve the high-level students' recall; and high-level learners were better than the low-level ones at overall scores with or without the comic strips

Based on the results of the study, the researcher claims that he is able to confirm the dual coding theory as well as the beneficial effects of using visuals for reading comprehension. He also states that further studies are needed in different contexts to shed more light onto the field.

METHODOLOGY

Purpose

The overall purpose of this study was to investigate the effects of comic strips on reading comprehension of Turkish EFL learners.

Participants

The participants of the study were 167 students enrolled at Anadolu University School of Foreign Languages (AUSFL). The characteristics of the participants are provided in Table 1. The participants were given a Michigan Placement Test by the administration of AUSFL before the beginning of the term and placed in either the elementary, lower-intermediate, intermediate, upper-intermediate, or advanced groups. The participants of

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this study were the four groups of lower-intermediate and four groups of upper-intermediate students. The students are from a variety of disciplines as their majors from Engineering to Fine Arts. The students are provided with four skills and a grammar in context as the courses offered by the AUSFL.

Table 1: Characteristics of the Participants

Level		Upper-Intermediate					Lower-Intermediate					All
Groups		A	B	C	D	Sub-total	E	F	G	H	Sub-total	Total
Gender	M	11	10	6	14	41	12	10	16	13	51	92
	F	12	9	7	9	37	8	12	9	9	38	75
	T	23	19	13	23	78	20	22	25	22	79	167
Mean Age		19,8	19,2	19,5	19,3	19,45	19,9	19,5	19,9	19,6	19,73	19,59

Instruments

The research instruments were two reading texts: A high-level text and a low level text developed by Liu (2004). Each text was originally developed for students at one of each proficiency level. Text 1 was created at the lower-intermediate level (250 words). The text was linguistically simple in terms of vocabulary use, simple syntax, and controlled use of slang and idioms. Text 2 was created for students at the upper-intermediate level (300 words). It was more complicated than Text 1 in terms of vocabulary use, syntax, and the use of idioms and slang. One version for each text was provided with comic strips and the other without comic strips (Appendix A)

Data Collection

The students in each level of proficiency were divided into four treatment groups:
- T1, low level text only
- T2, low-level text with comic strips
- T3, high-level text only
- T4, high-level text with comic strips

To differentiate treatments and to ease data collection, different colored papers were used for each treatment group: white for T1, pink for T2, green for T3, and yellow for T4.

Students were told to read the texts given and write what they remembered about the text they read on a separate answer sheet. This process is called the Immediate Recall Protocols (IRP), which is a valid means of assessing reading comprehension for foreign language students. According to Bernhardt (1991; cited in Liu, 2004: 254), “the immediate recall protocol avoids many of the pitfalls commonly found in other assessment measures.”

Data Analysis

The collected data were analyzed through scoring the IRPs. First, each recall protocol was divided into acceptable pausal units (each unit refers to a pause during normally paced oral reading).

Second, each unit was ranked from 1 to 4 based on their salience to the message of the text based on the sample value list provided by Liu (2004) (See Appendix B).

Third, two researchers analyzed the one fourth of the data separately, and the inter-rater reliability was calculated as .90. Then, the rest of the analyses were conducted by the researcher independently based on the agreements with the co-rater.

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Fourth, the numerical values were converted to percentages to provide statistical easiness. All scores were given out of 100 in the forms of percentages.

Finally, descriptive statistics for each treatment group for correct recalls and t-tests for testing the significance of the possible differences were calculated.

RESULTS

This section of the study presents the findings according to the descriptive statistics and statistics of significance to answer the research questions addressed.

In order to answer the first research question, "What effect does presenting text with comic strips have on Turkish EFL students' reading comprehension?", first of all, the participants' mean percentages of correct recalls in terms of proficiency (upper-intermediate vs. lower-intermediate), text level (low-level text vs. high-level text), and comic strip effect (with vs. without comic strips) were identified. As shown in Figure 2, all participants with a comic strip recalled better than the ones without a comic strip. Moreover, all participants with a higher proficiency level recalled the texts better than the ones with a lower proficiency level. Finally, the participants with a low-level text recalled better than the ones with a higher-level text.

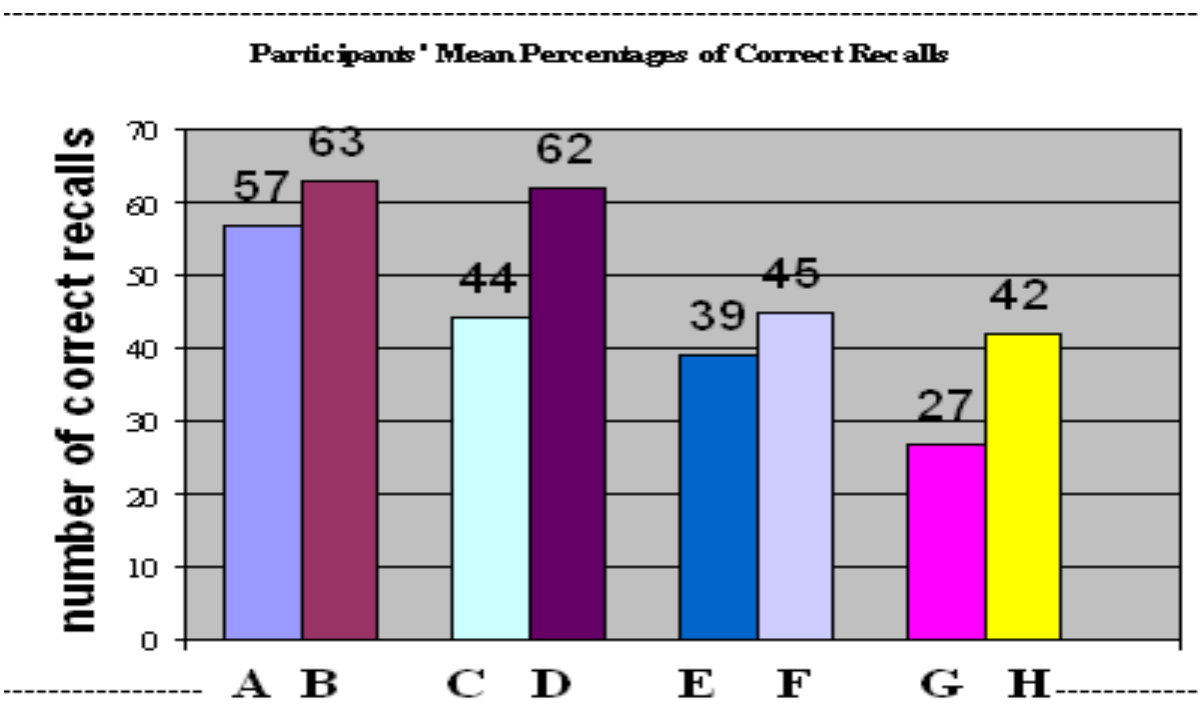

Figure 2: Participants' Mean Percentages of Correct Recalls

Note: A= Upper-Intermediate, Low-Level Text, Without Comics; B= Upper-Intermediate, Low-Level Text, With Comics; C= Upper-Intermediate, High-Level Text, Without Comics; D= Upper-Intermediate, High-Level Text, With Comics; E= Lower-Intermediate, Low-Level Text, Without Comics; F= Lower-Intermediate, Low-Level Text, With Comics; G= Lower-Intermediate, High-Level Text, Without Comics; H= Lower-Intermediate, High-Level Text, With Comics.

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The analysis of the data related to the significance of the differences among the mean scores was calculated using the 2X2X2 ANOVA analysis (Table 2).

Table 2: Results of the 2X2X2 ANOVA

Source	df	Mean Squares	F	Sig.
Proficiency	1	13761,998	95,110	,000
Text Level	1	2059,924	14,236	,000
Text Type	1	4995,671	34,525	,000
P*TL	1	4,745	,033	,857
P*TT	1	18,089	,125	,724
TL*TT	1	1185,679	8,194	,005
P*TL*TT	1	19,909	,138	,711
Error	159	23006,594		
Total	167	423528,000		

P= Proficiency, TL= Text Level, TT=

As Table 2 shows, proficiency has a significant effect on reading comprehension scores of the participants (F=95,110, p=.000, p<.05). On the other hand, the analysis showed that proficiency has no interaction with any other variables such as text difficulty (F=.033, p=.857, p>.05) and comic strip use (F=.125, p=.724, p>.05).

When considered as separate variables text-level and text type have effects on scores (F=.14,236, p=.000, p<.05 and F=.34,525, p=.000, p<.05). However, the analysis indicated an interaction between TL and TT (F=.8,194, p=.005, p<.05). This interaction shows that students with low-level text with comics (m= 54.10) performed than students without comics (m= 48,39). Similarly, students with high-level text with comics (m= 52.38) performed better than students without comic (m= 35.81). Therefore, the difference between scores in high level text with comic and without comic (16,57) and the difference between scores in low level text with comic and without comic (5.71) are significant. This means students read low level with or without level and it does not a significant difference; however, students read high level with comics have significantly higher scores.

DISCUSSION

The findings of this study revealed that all students with a comic strip effect, regardless of proficiency and text level, performed better than the ones without the comic strips. This expected finding is supported by the literature suggesting the facilitating effect of the use of comic strips (Wright & Sherman, 1994; Williams, 1995; Sherman & Wright, 1996; Cortazzi, Rafik-Galea & Jin, 1998; Wright & Sherman, 1999; Liu, 2004) and other visual cues (Hallenbeck, 1976; Arlin et al, 1978-1979; Kulhavy et al, 1985; Purnell & Solman, 1991; Gambrell & Jawitz, 1993; Qadiri, 1999) for a better reading comprehension.

On the whole, the pattern of results in this study is consistent with DCT. Both proficiency groups, this means all of the students, did well on recalling the text with the provision of a comic strip. On the other hand, the students without the provision of a comic strip together with the text had difficulties in comprehending the texts when compared to their counterparts who read the texts with comic strips. In fact, the DCT claims that the process of reading involves at least two coding systems: a verbal system and a nonverbal system. These two systems are interconnected but independent. As Liu (2004) suggests, this working system is able to explain the reasons why comic strips had a significant effect on reading comprehension. The comic strips provided in this study are not stored in the verbal code, but in the nonverbal code which is associated with their respective text descriptions in the verbal code.

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The findings of this study partly correlate with the findings of the similar study conducted by Liu (2004) with Chinese students. While Liu's study suggests that the use of comic strips significantly enhanced the performance of low-level students, but had little effect on high-level students; our study found that using comic strips enhanced both low-level (lower-intermediate) students and high-level (upper-intermediate) students. This might be due to the fact that the low-level and high-level discrimination is a factor in determining the study groups.

The findings of this study can also be explained with the text differences effect as well as the mere factor for the use of comic strips. As Nassaji (2003) found out, the word recognition, phonological processing skills, orthographic processing skills, and syntactic processing skills are the basic factors affecting the performance for both skilled and unskilled readers. It might be claimed that the students who had better recall of reading have better-developed skills in these respects.

Furthermore, induced mental imagery and attention to text-relevant illustrations Gambrell & Jawitz (1993) are the effective factors in comprehending a reading text. In this respect, another explanation for the effect of comic strips use on reading comprehension is from what Schmidt (1990; cited in Mitchell & Myles, 1998) put forward as 'noticing'. According to this hypothesis, if students experience difficulty related to the linguistic difficulty of the text when they are reading the text, the comic strip can call their attention to the linguistic input. Therefore, we can understand the possible reason behind the fact that students with a comic strip performed better than the students without a comic strip.

CONCLUSION

This study aimed to investigate the effect of comic strip use on reading comprehension of EFL students. It was found that high proficient students recalled significantly better than low proficient students. Also, students who read the low-level texts recalled significantly better than the ones who read the high-level texts. Finally, as the research interest of this study, comic strip use had a significant effect on students' recall of both the high-level and low-level texts for both high proficient and low proficient learners of English.

Implications and Suggestions for Further Research

This study found that comic strip use noticeably facilitated the reading comprehension of students at both levels. Once again, it was proved that students be provided texts with a visual material, the comic strips in particular, in their reading comprehension classrooms. As Wright & Sherman (1999) suggests, the teachers might even create their own strips together with their students, and present them in the classroom for developing high-level thinking.

Furthermore, as Liu (2004) puts forward, the effect comic strips on reading comprehension largely depends on the quality of the repetition effect. When readers are able to integrate the information from the text and from the illustration, these two work "as if the information was presented twice, thus enhancing performance" (Gyselick & Tardieu, 1999; cited in Liu, 2004, p. 238).

Another implication based on the findings of this study is for the material developers. The material developers for reading comprehension must be very careful at selecting their reading comprehension texts and the illustrations they provide with those texts. In the same manner, classroom teachers should use comic strips or other visual aids very carefully considering the proficiency level of their students. Although this study found that comic strip use influence comprehension positively regardless of proficiency level, certain factors must be taken into account by classroom teachers.

This study was conducted with lower-intermediate and upper-intermediate students as a replication of Liu's (2004) study. Since the study explored certain differences within these two studies, future research is needed

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to shed more light onto the field. The study should be replicated in different contexts with different proficiency levels, and age groups.

Moreover, future research can deal with different text types and different visual materials than the comic strips such as pictures, maps, photographs, etc. Therefore, the effect of visuals in reading comprehension can be rather clear for language teachers and materials developers.

Finally, the research method used in this study is a recall protocol which requires language production for comprehending a text. Future studies are needed with other research tools, especially recognition tasks such as Multiple-Choice items, True/False items, or both to see any possible differences due to the difference in the data collection methods.

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